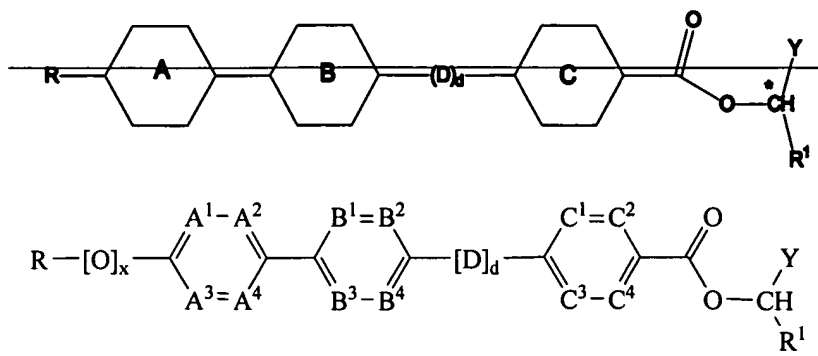


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A liquid crystal composition ~~which comprises one or more compounds~~ comprising a compound of the formula:



wherein:

x is 0 or 1;

R is $C_nF_{2n+1}C_mH_{2m}$

where

m is an integer greater than 3 and less than or equal to 10; and

n is an integer from 1 to 10 and m + n is less than or equal to 20 ~~and wherein R is optionally attached to ring A with an oxygen;~~

~~Rings A, B and C are unsubstituted 6 carbon aromatic rings;~~

d is 0 or 1;

each of A¹, A², A³, A⁴, B¹, B², B³, B⁴, C¹, C², C³, and C⁴ is independently CH, N, or CF, provided no more than 2 of A¹, A², A³, and A⁴ is N, no more than 2 of B¹, B², B³, and B⁴ is N, and no more than 2 of C¹, C², C³, and C⁴ is N;

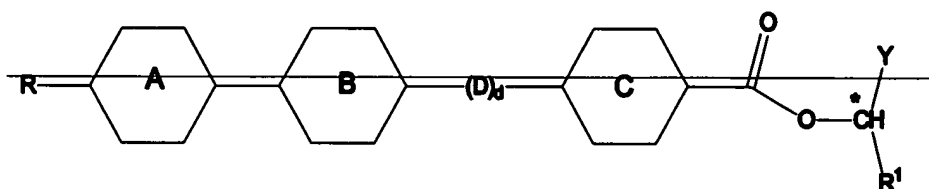
D is ~~-COO-~~ -C(=O)O-, -OC(=O)-, -CH₂-CH₂-, -CH=CH- or -C≡C-;

Y is an alkyl or fluorinated alkyl group having from one to six carbon atoms; and

R¹ is ~~an unsubstituted~~ a straight chain C₂₋₁₂ alkyl, C₂₋₁₂ alkenyl, or C₂₋₁₂ alkynyl group with from 2 to 12 carbon atoms containing at least one Si atom, where one or more non-neighboring CH₂ groups can be replaced with an -O-, -S-, -Si(R')₂-, -Si(R')₂-(CH₂)_p-

$\text{Si}(\text{R}')_2-$, where p is an integer ranging from 1 to 6, $-\text{Si}(\text{R}')_2-\text{O}-$, or $-\text{Si}(\text{R}')_2-\text{O}-\text{Si}(\text{R}')_2-\text{O}-$, a ~~cis or trans double bond or a triple bond~~, wherein each R' , independent of other R' , is independently an alkyl or fluorinated alkyl group having from one to six carbon atoms provided that n is not an integer from 4 to 10 and m is not an integer from 4 to 10 when Y is CH_3 or CF_3 .

2. (currently amended) A The liquid crystal composition of Claim 1, which exhibits a de Vries smectic A phase ~~which comprises one or more compounds of the formula:~~



wherein:

R is $\text{C}_n\text{F}_{2n+1}\text{C}_m\text{H}_{2m}$ where m is an integer greater than 3 and less than or equal to 10; n is an integer from 1 to 10 and $m + n$ is less than or equal to 20 and wherein R is optionally attached to ring A with an oxygen;

Rings A , B and C are 5 or 6 carbon aromatic rings each optionally substituted with from one to four fluorines and wherein one or two CH groups in the rings can be substituted with a N , an O or a S group;

d is 0 or 1;

D is a linker group selected from the group consisting of COO , OOC , CH_2CH_2 , a ~~cis or trans double bond, or a triple bond~~, when d is 0 rings B and C are linked through a single bond;

Y is an alkyl or fluorinated alkyl group having from one to six carbon atoms; and

R^1 is a nonchiral tail group selected from linear or branched alkyl groups where one or more non-neighboring CH_2 groups can be replaced with an O , S , $\text{Si}(\text{R}')_2$, $\text{Si}(\text{R}')_2-(\text{CH}_2)_p\text{Si}(\text{R}')_2$, where p is an integer ranging from 1 to 6, $\text{Si}(\text{R}')_2-\text{O}$, or $\text{Si}(\text{R}')_2-\text{O}-\text{Si}(\text{R}')_2-\text{O}$, a ~~cis or trans double bond or a triple bond~~, wherein each R' , independent of other R' , is an alkyl or fluorinated alkyl group having from one to six

~~carbon atoms and wherein the R^+ tail group is optionally substituted with one or more fluorines and wherein R^+ contains from 1 to 20 carbon atoms, which composition exhibits a de Vries smectic A phase.~~

3. (currently amended) The liquid crystal composition of claim 2 1, which exhibits V-shaped switching when incorporated as an aligned layer in an analog liquid crystal device.

4. (canceled) ~~The liquid crystal composition of claim 2 wherein the core rings A, B and C are selected from the group consisting of phenyls, fluorine-substituted phenyls, pyridines and pyrimidines.~~

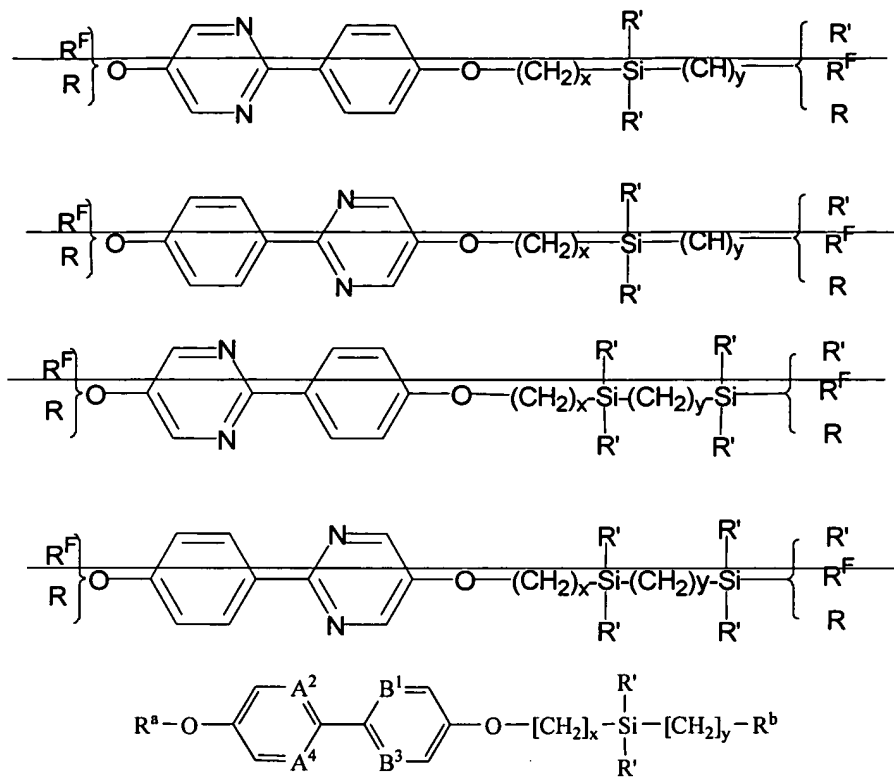
5. (currently amended) The liquid crystal composition of claim 4 1, wherein d is 1 and D is -COO- or -OOC-.

6. (original) The liquid crystal composition of claim 5 wherein Y is an alkyl or perfluorinated alkyl group having 1 to 3 carbon atoms.

7-10. (canceled)

11. (withdrawn) The liquid crystal composition of claim 1 wherein d is 1 and D is -CH₂-CH₂-.

12. (currently amended) The liquid crystal composition of claim 1, wherein said composition further comprises a second compound ~~further comprising one or more components~~ having any of the formulas:



wherein

where x and y, independent of x and y in other components, are integers ranging is an integer from 1 to 10 inclusive; R' is a lower alkyl group having from 1 to 6 carbon atoms; R is an achiral or racemic alkyl group having from 3 to 20 carbon atoms, R^F is a perfluorinated alkyl group or partially fluorinated group having 1 to 20 carbon atoms; y is an integer from 0 to 10;

R' is C₁₋₆ alkyl;

R^a is C₃₋₂₀ alkyl or C₁₋₂₀ partially fluorinated or perfluorinated alkyl;

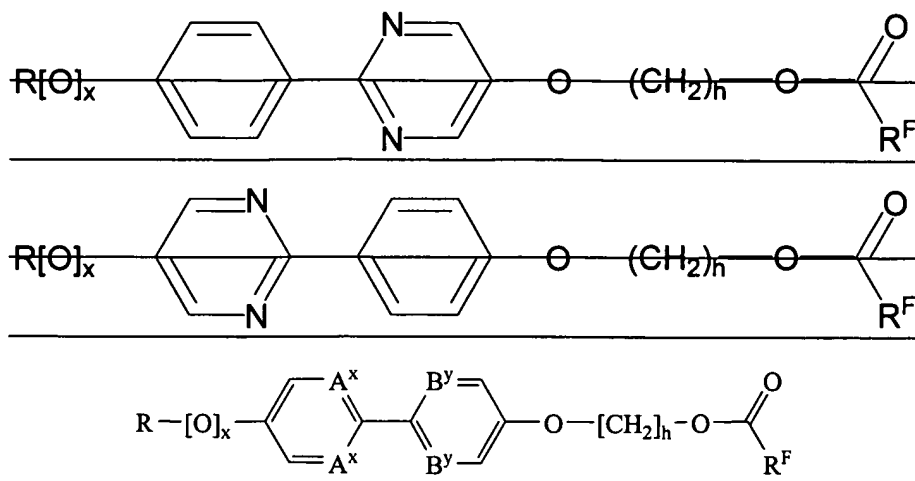
R^b is C₁₋₂₀ alkyl or C₁₋₂₀ partially fluorinated or perfluorinated alkyl;

A² and A⁴ are CH or N; and

B¹ and B³ are CH or N.

13. (withdrawn) The mixture of claim 12 wherein the one or more components of the listed formulas are present in a total amount of about 25% by weight or more of the mixture.

14. (currently amended) The liquid crystal composition of claim 12 further comprising ~~one or more components having~~ a compound of the formulas:



wherein

~~where x is 0 or 1;~~ independent of x in other components,

h is an integer from 1 to 10;

R is an C_{3-20} alkyl; ~~group having from 3 to about 20 carbon atoms,~~

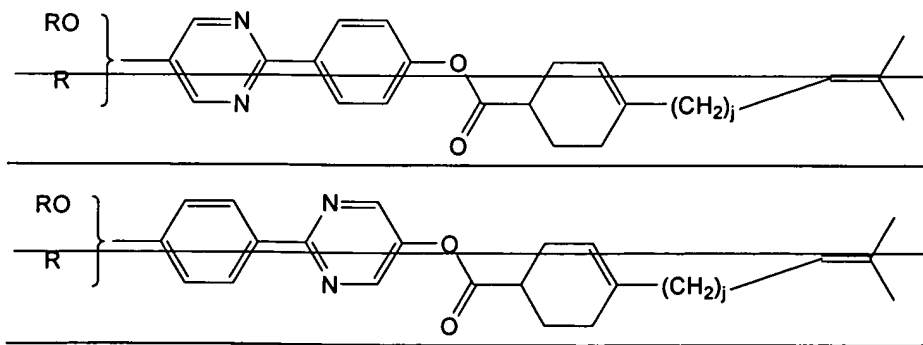
R^F is C_{1-20} a perfluorinated or partially fluorinated alkyl; ~~group or partially fluorinated group~~
having 1 to 20 carbon atoms

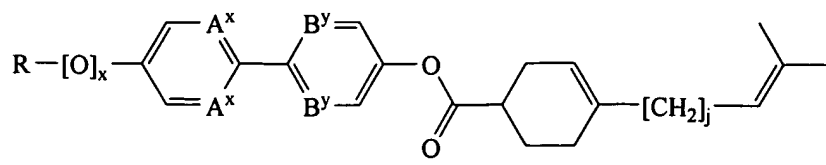
A^x are CH or N;

when A^x are CH, then B^y are N; and

when A^x are N, then B^y are CH.

15. (currently amended) The liquid crystal composition of claim 12 further comprising ~~one or more components having~~ a compound of the formulas:





wherein

where j is an integer that ranges from 2 to 10, inclusive, and

R is C_{3-20} an alkyl group having from 3 to 20 carbon atoms

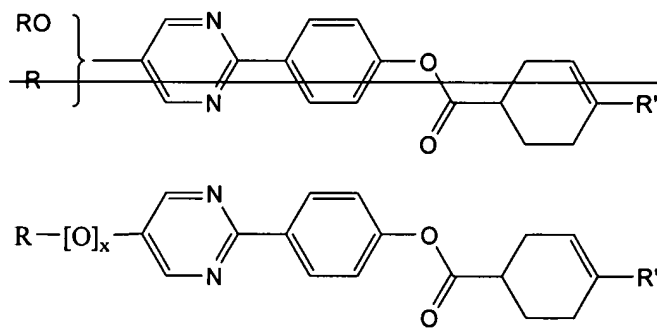
x is 0 or 1;

A^x are CH or N;

when A^x are CH, then B^y are N; and

when A^x are N, then B^y are CH.

16. (currently amended) The liquid crystal composition of claim 15 further comprising a compound of the formula ~~one or more components having the formula:~~



wherein

x is 0 or 1;

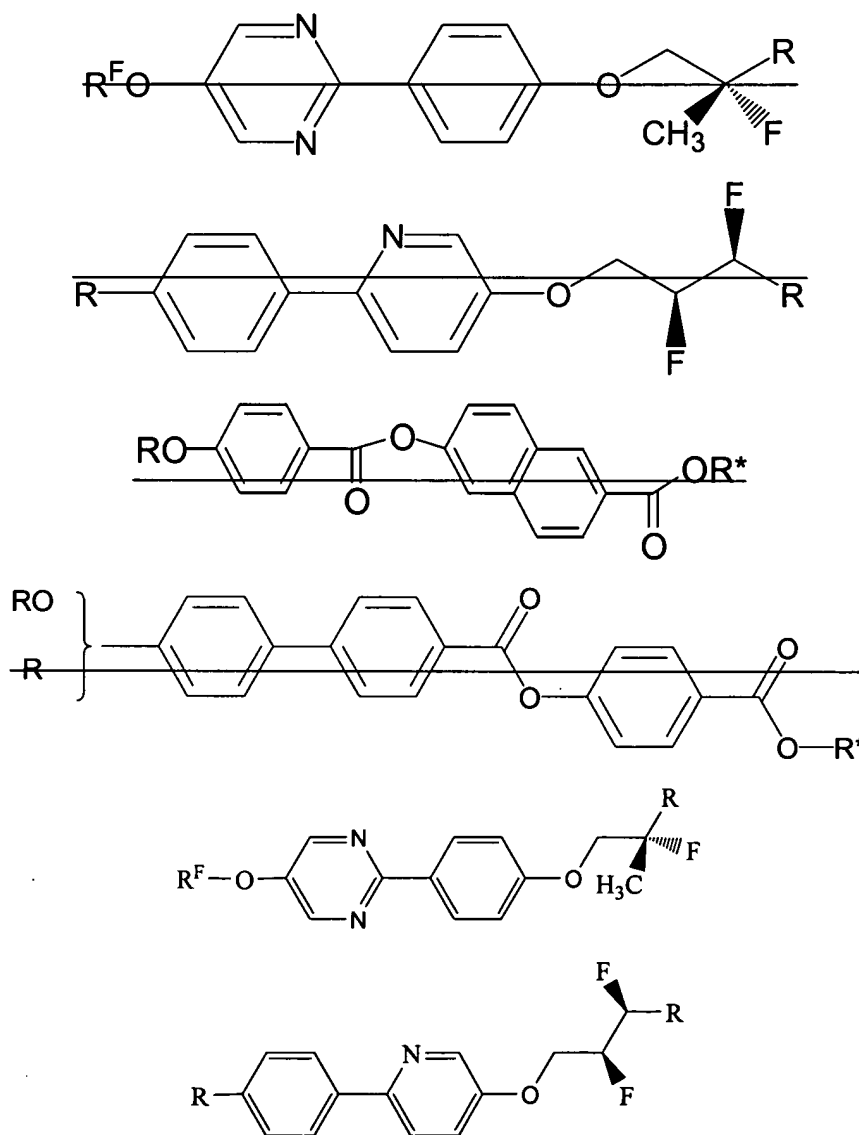
R is C_{3-20} alkyl; and

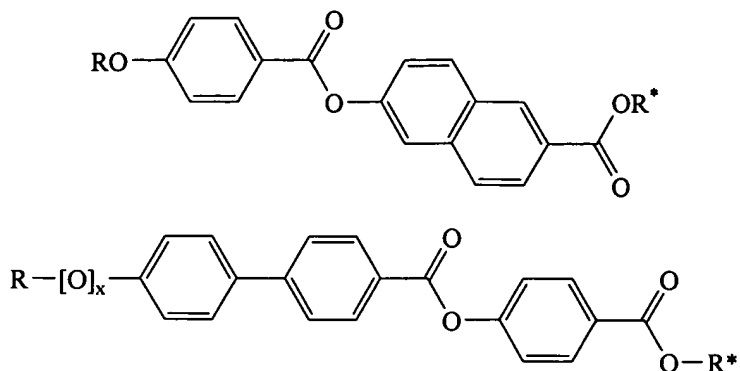
R' is a lower alkyl group having from 1 to 6 carbon atoms.

17. (withdrawn) The liquid crystal composition of claim 12 which has a total number of components of 5 or more.

18. (canceled) ~~The liquid crystal composition of claim 1 which comprises a first chiral nonracemic component which comprises one or more chiral nonracemic compounds of the formula:~~

19. (currently amended) The liquid crystal composition of claim 16 further comprising a second chiral nonracemic component which comprises ~~one or more a chiral compound of the formula nonracemic compounds selected from the group of compounds having~~ formulas:





or an enantiomer or a mixture ~~enantiomers thereof, wherein where~~

x is 0 or 1;

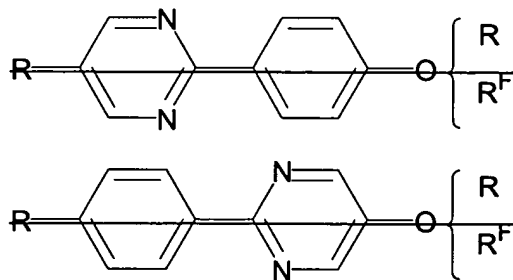
R is an C₂₋₂₀ alkyl; ~~group having from 2 to about 20 carbon atoms;~~

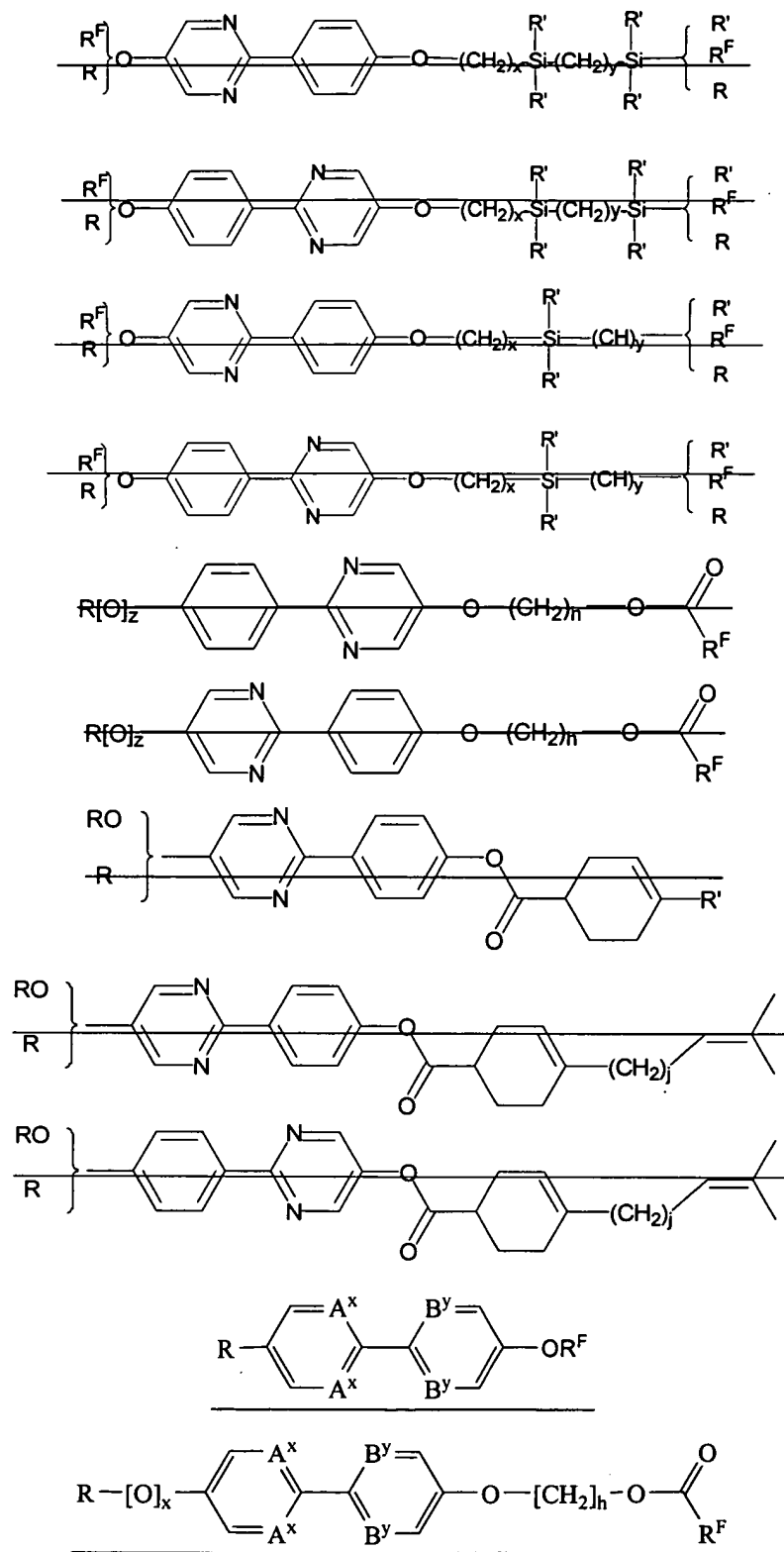
R* is a chiral ~~nonracemic~~ branched C₃₋₂₀ alkyl group; ~~having from 3 to about 20 carbon atoms;~~ and

R^F is C₃₋₂₀ a perfluoroalkyl perfluoro or a partially fluorinated alkyl ~~groups having from 3 to about 20 carbon atoms.~~

20. (withdrawn) The liquid crystal composition of claim 19 wherein the second chiral nonracemic component is present in the mixture at a level of at least about 10% by weight.

21. (currently amended) The liquid crystal composition of claim 19 further comprising an achiral or racemic component selected from the group consisting of a compound of the formula: which comprises one or more compounds having the formulas





and a mixture thereof, wherein

~~z is 1 or 0;~~

~~x and y, independent of x and y in other components range from 1 to 20;~~

~~h is an integer ranging from 1-10;~~

~~j is an integer ranging from 2-20;~~

x is 0 or 1;

R is C₃₋₂₀ an alkyl group (linear or branched) having from 3 to 20 carbon atoms;

R^F is a partially fluorinated or perfluorinated C₁₋₂₀ alkyl; tail group and R' is a lower alkyl group having from 1 to 6 carbon atoms

A^x are CH or N;

when A^x are CH, then B^y are N; and

when A^x are N, then B^y are CH.

22. (withdrawn) The liquid crystal composition of claim 21 which contains a total number of components of 5 or more.

23. (withdrawn) The liquid crystal composition of claim 21 which contains at least one component of each formula listed.

24. (canceled)

25. (previously presented) The liquid crystal composition of claim 2 wherein Y is an alkyl or fluorinated alkyl group having from 1 to 3 carbon atoms.

26. (original) The liquid crystal composition of claim 25 wherein Y is CF₃.

27. (original) The liquid crystal composition of claim 26 wherein R¹ is an alkyl group.

28. (original) The liquid crystal composition of claim 27 wherein R¹ is an alkyl group having from 4 to 8 carbon atoms.

29. (currently amended) The liquid crystal composition of claim 26 wherein ~~the rings A, B and C are phenyl rings or fluorine-substituted phenyl rings~~ each of A¹, A², A³, A⁴, B¹, B², B³, B⁴, C¹, C², C³, and C⁴ is independently CH or CF.

30. (original) The liquid crystal composition of claim 29 wherein d is 1 and D is -COO- or -OOC-.

31. (currently amended) The liquid crystal composition of claim 26 wherein at least one of ~~rings A, B or C is a pyridine or a pyrimidine ring~~ A¹, A², A³, A⁴, B¹, B², B³, B⁴, C¹, C², C³, and C⁴ is N.

32. (withdrawn) The liquid crystal composition of claim 31 wherein d is 1 and D is -COO- or -OOC-.

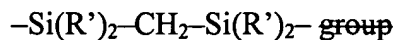
33. (canceled) ~~The liquid crystal composition of claim 26 wherein R¹ contains one or more Si atoms.~~

34. (currently amended) The liquid crystal composition of claim ~~33~~ 26, wherein R¹ ~~has~~ comprises a moiety of the formula:



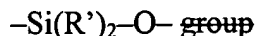
where p is 1-6 and R' is ~~a small C₁₋₃ alkyl group having from 1 to 3 carbon atoms.~~

35. (currently amended) The liquid crystal composition of claim ~~33~~ 26, wherein: R¹ ~~contains~~ comprises a moiety of the formula:



where R' is ~~a small C₁₋₃ alkyl group having from 1 to 3 carbon atoms.~~

36. (currently amended) The liquid crystal composition of claim 33 26, wherein: R¹ contains comprises a moiety of the formula:



where R' is ~~a small~~ C₁₋₃ alkyl ~~group having from 1 to 3 carbon atoms.~~

37. (currently amended) The liquid crystal composition of claim 33 26, wherein: R¹ contains comprises a moiety of the formula:

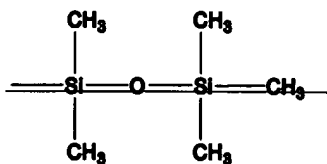


where R' is ~~a small~~ C₁₋₃ alkyl ~~group having from 1 to 3 carbon atoms.~~

38. (canceled)

39. (canceled)

40. (currently amended) The liquid crystal composition of claim 38 1, wherein R¹ contains a



~~group~~ comprises a moiety of the formula $-\text{Si}(\text{CH}_3)_2-\text{O}-\text{Si}(\text{CH}_3)_3$.

41. (currently amended) The liquid crystal composition of claim 40 wherein ~~rings A, B and C are phenyl rings or fluorine-substituted phenyl rings~~ each of A¹, A², A³, A⁴, B¹, B², B³, B⁴, C¹, C², C³, and C⁴ is independently CH or CF.

42. (canceled) ~~The liquid crystal composition of claim 40 wherein R is RF.~~

[Illogical]

43. (canceled) ~~The liquid crystal composition of claim 1 wherein R is an ether having the formula $C_qH_{2q+1}-O-C_rH_{2r}$, where q and r are integers from 1 to 20.~~ **[Illogical]**

44. (currently amended) The liquid crystal composition of claim 43 1, wherein Y is CF_3 .

45. (canceled) ~~The liquid crystal composition of claim 44 wherein R^1 is an alkyl group.~~ **[Redundant/illogical]**

46. (canceled) ~~The liquid crystal composition of claim 45 wherein rings A, B and C are selected from the group consisting of phenyls, fluorine-substituted phenyls, pyridines and pyrimidines.~~ **[Redundant]**

47. (currently amended) The liquid crystal composition of claim 46 44, wherein ~~rings A, B and C are selected from the group consisting of phenyl rings, or fluorine-substituted phenyl rings~~ each of $A^1, A^2, A^3, A^4, B^1, B^2, B^3, B^4, C^1, C^2, C^3$, and C^4 is independently CH or CF.

48. (canceled) ~~The liquid crystal composition of claim 1 wherein R is an ether having the formula: $C_qH_{2q+1}-O-C_rH_{2r}-O-C_sH_{2s}$, where q, r and s are integers from 1 to 20.~~ **[Illogical]**

49. (previously presented) The liquid crystal composition of claim 2 which exhibits a Ps of 27 nC/cm^2 or greater.

50. (previously presented) The liquid crystal composition of claim 2 which exhibits a Ps of 40 nC/cm^2 or greater.

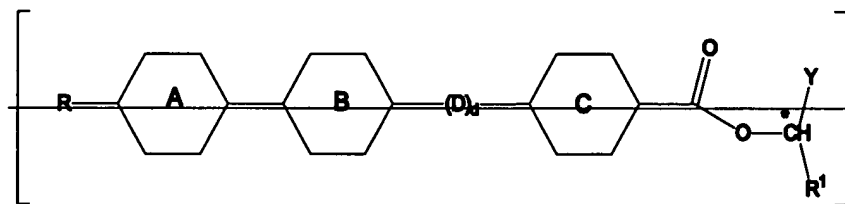
51. (previously presented) The liquid crystal composition of claim 2 which when introduced as an aligned layer in a liquid crystal device exhibits an electric rise time of 150 μ sec or less.

52. (previously presented) The liquid crystal composition of claim 2 which exhibits viscosity of 200 mP*S or less.

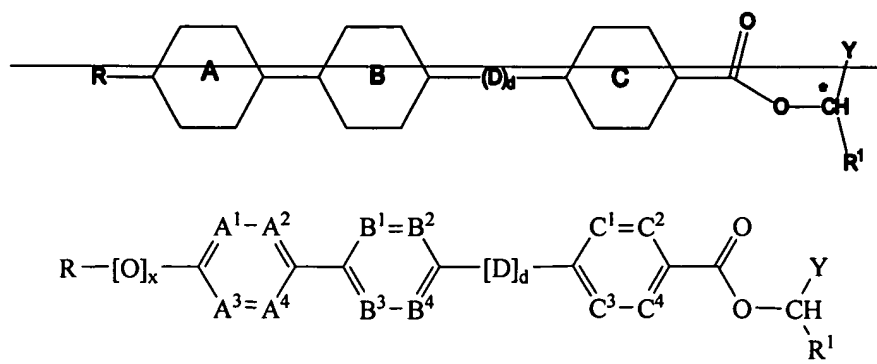
53. (previously presented) The liquid crystal composition of claim 2 which exhibits a smectic A phase which extends over a range of 20 °C or more.

54. (previously presented) The liquid crystal composition of claim 2 which exhibits both a smectic A and a smectic C phase.

55. (currently amended) The liquid crystal composition of claim 54 which exhibits a smectic C phase with a temperature range encompassing room temperature.



56. (currently amended) A compound having the formula:



wherein:

x is 0 or 1;

R is $C_nF_{2n+1}C_mH_{2m}$

where

m is an integer greater than 3 and less than or equal to 10; and

n is an integer from 1 to 10 and m + n is less than or equal to 20 and wherein R is optionally attached to ring A with an oxygen;

Rings A, B and C are unsubstituted 6 carbon aromatic rings;

each of $A^1, A^2, A^3, A^4, B^1, B^2, B^3, B^4, C^1, C^2, C^3,$ and C^4 is independently CH, N, or CF, provided no more than 2 of $A^1, A^2, A^3,$ and A^4 is N, no more than 2 of $B^1, B^2, B^3,$ and B^4 is N, and no more than 2 of $C^1, C^2, C^3,$ and C^4 is N;

d is 0 or 1;

D is COO , when d is 0 rings B and C are linked through a single bond

$-C(=O)O-$, $-OC(=O)-$, $-CH_2-CH_2-$, $-CH=CH-$ or $-C\equiv C-$;

Y is an alkyl or fluorinated alkyl group having from one to six carbon atoms; and

~~R¹ is an unsubstituted straight chain C₂₋₁₂ alkyl, C₂₋₁₂ alkenyl, or C₂₋₁₂ alkynyl group with from 2 to 12 carbon atoms containing at least one Si atom, where one or more non-neighboring CH₂ groups can be replaced with an -O-, -S-, -Si(R')₂-, -Si(R')₂-(CH₂)_p-Si(R')₂-, where p is an integer ranging from 1 to 6, or -Si(R')₂-O-, -Si(R')₂-O-Si(R')₂-O-, a cis or trans double bond or a triple bond, wherein each R', independent of other R-, is independently an alkyl or fluorinated alkyl group having from one to six carbon atoms; provided that n is not an integer from 4 to 10 and m is not an integer from 4 to 10 when Y is CH₃ or CF₃.~~

57. (previously presented) The compound of claim 56 wherein Y is CF₃.

58-59 (canceled)

60. (previously presented) The compound of claim 56 wherein R is C₄F₉C₄H₈-.

61. (previously presented) The compound of claim 56 wherein R is $C_4F_9C_6H_{12}$.
62. (canceled)
63. (currently amended) An electrooptical device comprising an aligned liquid crystal layer which comprises the liquid crystal composition of claim ~~2~~ 1.
64. (original) The electrooptical device of claim 63 wherein the device exhibits bistable switching.
65. (original) The device of claim 64 which is an analog device exhibiting V-shaped switching.
66. (currently amended) An electrooptical device comprising an aligned layer which comprises the liquid crystal composition of claim ~~2~~ 1 and which can be operated at low driving voltages at high frequency and using a symmetrical driving scheme for DC balance.
67. (currently amended) A method for making a bistable liquid crystal electrooptical device which comprises the step of aligning a liquid crystal composition of claim ~~2~~ 1 which exhibits a de Vries smectic A phase in a bookshelf alignment in the device.
68. (currently amended) A method for making an electrooptical device that exhibits analog switching which comprises the step of aligning a liquid crystal composition of claim ~~2~~ 1 which exhibits V-shaped switching in the device.
69. (withdrawn) A method for making a liquid crystal composition which exhibits both bistable switching and V-shaped switching which comprises the step of combining one or

more chiral nonracemic compounds of claim 1 with one or more liquid crystal compounds which have one or both tail groups that are partially fluorinated or that contain one or more Si atoms.

70. (withdrawn) The method of claim 69 wherein about 25% to about 65% of a chiral nonracemic compound of claim 1 is combined to form the liquid crystal composition.